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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,597	12/18/2001	Muralidhara Padigaru	21402-224AD (CURA-524AD)	2896
7590 12/01/2004				
JENELL LAWSON INTELLECTUAL PROPERTY 555 LONG WHARF DRIVE CURAGEN CORPORATION NEW HAVEN, CT 06551			EXAMINER LOCKARD, JON MCCLELLAND	
			ART UNIT 1647	PAPER NUMBER
DATE MAILED: 12/01/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/023,597

**Applicant(s)**

PADIGARU ET AL.

**Examiner**

Jon M Lockard

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 1-4, 15-38, 40, 41 and 43-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-14, 39 and 42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-52 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Sequence Alignment</u>                 |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group II, claims 5-14, 39, and 42 drawn to nucleic acids of SEQ ID NO:23, vectors and host cells comprising the same, and a method of recombinantly producing the polypeptide of SEQ ID NO:24, in the reply filed on 20 September 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. The restriction requirement is still deemed proper and is therefore made FINAL.

### ***Status of Application, Amendments, And/Or Claims***

3. Applicants' amendment filed on 20 September 2004 has been received and entered in full. Claims 1-52 are pending. Claims 5-14, 39, and 42 are under consideration. All other claims are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Information Disclosure Statement***

4. The Information Disclosure Statements (IDS) submitted on 08 April 2002 and 30 April 2003 have been considered by the Examiner.

### ***Specification***

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. Applicant is requested to avoid the

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use of “novel” in the title, as patents are presumed to be novel and unobvious. The following title is suggested: “G-protein coupled receptor (GPCR) polynucleotides”.

### *Claim Objections*

6. Claims 5-14, 39, and 42 are objected to because of the following informalities: Claims 5-14, 39, and 42 encompass non-elected inventions, e.g., SEQ ID NO:2-22 and 26-128 (even) and SEQ ID NO:1-21 and 25-127 (odd) in claims 5 and 8-10. Appropriate correction is required.
7. Claim 9 is objected to because of the following informalities: part (b) of the claim begins with “(b) (b)”. Appropriate correction is required.

### *Claim Rejections - 35 USC § 101 and 35 USC §112*

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 5-14, 39, and 42 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific, substantial, and credible asserted utility or a well established utility. Novel biological molecules lack an established utility and must undergo extensive experimentation to determine an appropriate specific, substantial, and credible utility.

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10. The instant application discloses a nucleic acid set forth as SEQ ID NO:23 that encodes the protein set forth as SEQ ID NO:24, vectors and host cells comprising the same, pharmaceutical compositions comprising said nucleic acids, and kits comprising the same. The specification asserts that SEQ ID NO:24 is a G protein coupled receptor (GPCR) based on a high degree of homology to known GPCR sequences (see page, lines 25-30). However, the instant specification does not teach any physiologic ligands or functional characteristics of the GPCR set forth in SEQ ID NO:24 or encoded by the disclosed nucleic acid set forth in SEQ ID NO:23. Further, the GPCR comprising SEQ ID NO:24 or encoded by said disclosed nucleic acid has never been expressed in a cell or organism or assayed for functional activity. There is no well-established utility for a specific nucleic acid or amino acid sequence and the specification fails to disclose a specific and substantial utility for the claimed invention.

11. The specification asserts the following as patentable utilities for the claimed DNA (SEQ ID NO:23) encoding the receptor protein of SEQ ID NO:24:

- 1) as hybridization probes and PCR primers (pg 10, lines 17-20);
- 2) chromosome mapping (pg 66, line 13 – pg 68, line 14);
- 3) tissue typing (pg 68, line 16 – pg 69, line 15);
- 4) prognostic assays (pg 72, line 1 – page 77, line 13);
- 5) diagnostic assays (pg 70, line 14 – pg 71, line 33);
- 6) pharmacogenomics (pg 77, line 15 – pg 79, line 6);
- 7) methods of monitoring treatment (pg 79, line 8 – pg 80, line 16); and
- 8) prophylactic and/or therapeutic agents for various diseases (pg 80, lines 17-29)

12. These asserted utilities are neither specific nor substantial because they do not identify or reasonably confirm a “real world” context of use. The specification neither identifies the

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biological functions of the claimed protein and DNA, nor any diseases that are associated with the claimed molecules. Without any biological activity or link to a disease, such constitutes further research to determine the properties of the claimed GPCR protein or partial peptides, which is insufficient to meet the requirement of 35 USC § 101.

13. These activities and functions are conjectural and are based solely on the identification of the putative protein of SEQ ID NO:24 as being a G-protein coupled receptor (GPCR). While it is credible that SEQ ID NO:24 is a GPCR, its identification as such is not sufficient to establish either a well known, or a specific, substantial and credible utility. There is no ligand identified that binds to it, no signaling pathway with which it is involved, and no disease or disorder correlated with the polypeptide. The use of an orphan receptor to discover its ligand or properties does not constitute a specific, substantial utility. Since the instant specification does not disclose how to use the polypeptide of SEQ ID NO:24, a skilled artisan would not know how to use nucleic acids of SEQ ID NO:23 that encode the polypeptide.

14. The art teaches that the GPCR family is extremely diverse, and that function cannot be predicted merely by identifying a protein as a GPCR. For example, Ji et al., in the Journal of Biological Chemistry 273(28): 17299-17302, teach that there have been nearly 2000 GPCR's reported, which are classifiable into 100 sub families according to sequence homology, ligand structure and receptor function. They further teach that different GPCR superfamily members are capable of sending signals via alternative signal molecules such as Jak2, phospholipase C, or protein kinase C, and that there are other seven transmembrane domain molecules that are not coupled to G proteins at all. Marchese et al. (Genomics 29:335), teach that IL-8 receptor, neuropeptide Y receptor and Somatostatin receptors are all GPCR's. Thus, although the

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homology of the GPCR family, especially in the transmembrane domain regions, allows identification of such as both GPCRs and as being evolutionarily related, such is not predictive of function. It is possible that, after further characterization, this protein might be found to have a patentable utility, in which case proteins would have a specific utility, or the protein might be found to be associated with a specific disease.

15. In *Brenner v. Manson*, 148 U.S.P.Q. 689 (Sup. Ct., 1966), a process of producing a novel compound that was structurally analogous to other compounds which were known to possess anti-cancer activity was alleged to be useful because the compound produced thereby was potentially useful as an anti-tumor agent in the absence of evidence supporting this utility. The court expressed the opinion that all chemical compounds are “useful” to the chemical arts when this term is given its broadest interpretation. However, the court held that this broad interpretation was not the intended definition of “useful” as it appears in 35 U.S.C. § 101, which requires that an invention must have either an immediately obvious or fully disclosed “real world” utility. The instant claims are drawn to a protein which has undetermined function or biological significance. Until some actual and specific activity or significance can be attributed to the protein identified in the specification as SEQ ID NO:24 or the polynucleotide encoding it (SEQ ID NO:23), the claimed invention is incomplete.

16. Claims 5-14, 39, and 42 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific, substantial and credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to make/use the claimed invention.

17. Furthermore, even if the protein of SEQ ID NO:24 or the DNA of SEQ ID NO:23 that encodes SEQ ID NO:24 were to have a patentable utility, the instant disclosure would not be found to be enabling for the full scope of the claimed invention.

18. Claim 5 recites a polynucleotide or a fragment thereof that encodes a polypeptide or “a portion” thereof that shares at least 85% sequence identity to the polypeptide of SEQ ID NO:24 or complements thereof, claim 9 recites a polynucleotide that shares at least 80% sequence identity to SEQ ID NO:23 or fragments thereof, claim 10 recites a polynucleotide that hybridizes under stringent conditions (See 112¶2 rejection below) to the polynucleotide of SEQ ID NO:23 and complements thereof, and claim 11 recites a polynucleotide that shares at least 80% sequence identity to a polynucleotide that encodes a polypeptide that shares at least 85% sequence identity to the polypeptide of SEQ ID NO:24 and fragments thereof. However, other than the protein of SEQ ID NO:24 and the DNA of SEQ ID NO:23 that encodes the protein, the disclosure fails to provide sufficient guidance and information regarding the structural and functional requirements commensurate in scope with what is encompassed by the instant claims. The disclosure has not shown (1) which portions of SEQ ID NO:24 or SEQ ID NO:23 are critical to the activity of the protein of SEQ ID NO:24 (which is itself unknown); (2) what modifications (e.g., substitutions, deletions, or additions) one can make to SEQ ID NO:24 that will result in protein mutants with the same activity as the protein of SEQ ID NO:24; and (3) any guidance on how to use peptides of SEQ ID NO:24 which would, based on the language of said claims, encompass both active and inactive variants of SEQ ID NO:24. The state of the art is such that the relationship between the sequence of a protein and its activity is not well understood and



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unpredictable, and that certain positions in the sequence are critical to the protein's structure/function relationship and can only tolerate only relatively conservative substitutions or no substitutions (See Wells, 1990, Biochemistry 29:8509-8517; Ngo et al., The Protein Folding Problem and Tertiary Structure Prediction, 1994, pp. 492-495).

19. Furthermore, even if the nucleic acid of SEQ ID NO:23 was enabled, the instant disclosure would not be found to be enabling for a pharmaceutical composition comprising the nucleic acid. Since the Instant Specification has not disclosed any disease or disorder correlated with the expression of SEQ ID NO:23 or the protein encoded by it, a skilled artisan would not know how to use a pharmaceutical composition comprising the nucleic acid of SEQ ID NO:23. With respect to this aspect of the rejection, amendment to the claim to read "A composition comprising the nucleic acid molecule of claim 5 and a pharmaceutically-acceptable carrier." would be remedial.

19. Due to the large quantity of experimentation necessary to generate the infinite number of derivatives recited in the claims, the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity, the absence of working examples directed to the same, the complex nature of the invention, the state of the prior art which establishes the unpredictability of the effects of substitutions/deletions on protein structure and function, and the breadth of the claims which fail to recite any structural or functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

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20. Claims 5-7, 9-14, 39, and 42 are also rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

21. The specification discloses a protein of SEQ ID NO:24 and a nucleic acid sequence of SEQ ID NO:23 that encodes the protein of SEQ ID NO:24. However, claim 5 recites a polynucleotide that encodes a polypeptide that shares at least 85% sequence identity to the polypeptide of SEQ ID NO:24 or complements thereof, claim 9 recites a polynucleotide that shares at least 80% sequence identity to SEQ ID NO:23 or fragments thereof, claim 10 recites a polynucleotide that hybridizes under stringent conditions (See 112(b) rejection below) to the polynucleotide of SEQ ID NO:23 and complements thereof, and claim 11 recites a polynucleotide that shares at least 80% sequence identity to a polynucleotide that encodes a polypeptide that shares at least 85% sequence identity to the polypeptide of SEQ ID NO:24 and fragments thereof. Claims 6-7, 12-14, 39, and 42 depend, either directly or indirectly, from claim 5. The claims do not require that the proteins and nucleic acids possess any particular biological activity, nor any particular conserved structure, or other disclosed distinguishing feature. Thus, the claims are drawn to a genus of DNA molecules.

22. To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, and any combination thereof. In this case, the only factor present in claims

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5, 9, and 11 is a partial structure in the form of a recitation of percent identity. Furthermore, the only factor present in claim 10 is a mere chemical property of the DNA in the form of a recitation of hybridizes to the polynucleotide of SEQ ID NO:23 or a complement thereof. The specification does not identify any particular structure/function correlation or biological activity. The distinguishing characteristics of the claimed genus are not described. The only adequately described species is the polynucleotide set forth as SEQ ID NO:23 and the polypeptide encoded by it (SEQ ID NO:24). Accordingly, the specification does not provide adequate written description of the claimed genus.

23. *Vas-Cath Inc. v. Mahurkar*, 19USPQ2d 1111, clearly states that “applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*. The invention is, for purposes of the ‘written description’ inquiry, *whatever is now claimed*.” (See page 1117.) The specification does not “clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.” (See *Vas-Cath* at page 1116).

24. With the exception of the sequences referred to above, the skilled artisan cannot envision the detailed chemical structure of the encompassed polypeptides and DNA molecules, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The nucleic acid itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

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25. One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

26. Therefore, only the polynucleotide set forth as SEQ ID NO:23 and degenerate variants thereof, and the protein encoded by it (SEQ ID NO:24), but not the full breadth of the claims meet the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

***Claim Rejections - 35 USC § 112, 2<sup>nd</sup> paragraph***

27. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

28. Claims 5-14, 39, and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

29. Claim 5 is indefinite because it recites the term "mature form". Since neither the art nor the specification provides an unambiguous definition of the term, the metes and bounds of the claim cannot be determined.

30. Claim 5 is further indefinite for reciting "a portion". Without knowing the minimum length of "a portion", the metes and bounds of the claim cannot be determined.

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31. Claims 5 and 10-11 are indefinite because the metes and bounds of the term “complement” are not clear from the prior art or the Specification. It is not clear if a full-length or partial complement is intended.

32. Claims 6 and 7 are rejected as being indefinite because it is not clear what is meant by the terms “naturally-occurring allelic nucleic acid variant” in claim 6 and “naturally-occurring polypeptide variant” in claim 7. Since one of ordinary skill in the art would not be able to ascertain whether an isolated sequence represents a naturally-occurring sequence, the metes and bounds of the claims cannot be determined.

33. Claims 9 and 11 are rejected as being indefinite for reciting “fragment”. Without knowing the minimum length of the “fragment”, the metes and bounds of the claims cannot be determined.

34. Claim 10 is rejected as being indefinite because it is unclear if the “complement” refers to a complement of SEQ ID NO:23 or a complement of a nucleic acid that hybridizes under stringent conditions to SEQ ID NO:23.

35. Claim 10 is rejected as being indefinite as there is no limiting definition of stringent hybridization conditions in the Specification, and the metes and bounds of that which will hybridize are dependent upon the conditions under which the hybridization is performed. The discussion of such at page 18 of the Specification is noted but vague, fails to breathe life and meaning into the term, is exemplary rather than limiting, and thus is insufficient to render the claim definite.

36. Claims 8-9, 12-14, and 39 depend, either directly or indirectly, from claim 5.

***Claim Rejections - 35 USC § 102***

37. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

38. Claims 5-7 and 9-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Lal et al. (US 2003/0119111 A1, published on 26 June 2003; priority date, 20 March 2000).

39. Lal et al. teach a polynucleotide (SEQ ID NO:35) that encodes a G-protein coupled receptor set forth as SEQ ID NO:14. The disclosed sequence comprises a nucleotide sequence that shares 84% sequence identity with SEQ ID NO:23 of the Instant Application (comprising the coding sequence) and encodes a polypeptide that comprises a polypeptide sequence that shares 87.5% sequence identity with the polypeptide set forth as SEQ ID NO:24 of the Instant Application (See attached Sequence Alignments). It is noted that the terms “comprising a nucleic acid sequence” encoding a polypeptide “comprising an amino acid sequence”, for example, as recited in the claims is open language and thus the claims read on the polynucleotide taught by Lal et al. (See also 112¶2 rejections *supra*). The polynucleotide set forth as SEQ ID NO:35 also comprises a fragment (nucleotides 231-269) that shares 100% sequence identity with nucleotides 235-273 of SEQ ID NO:23 of the Instant Application, that encodes a protein that shares 100% sequence identity with amino acid residues 79-98 of SEQ ID NO:24 of the Instant

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Application (See attached Sequence Alignments). The polynucleotide set forth as SEQ ID NO:35, which is 84% identical to SEQ ID NO:23, would also hybridize to SEQ ID NO:23 under stringent conditions. Lal et al. also teach the nucleic acids also include fragments and complements of SEQ ID NO:25 (See pg 3, ¶0023 and pg 7, ¶0065). Lal et al. also teach a vector and a host cell comprising the polynucleotides of SEQ ID NO:35 operably linked to a promoter, and a method of producing the receptor protein or fragments thereof (See pg 14, ¶0151 – pg 16, ¶0166). Lastly, Lal et al. teach pharmaceutical compositions comprising the nucleic acids (See pg 23, ¶0212), which by necessity would be in a container. Thus, the reference of Lal et al. meets all the limitations of claims 5-7, 9-14, 39, and 42.

#### *Summary*

40. No claim is allowed.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jon M. Lockard, Ph.D.** whose telephone number is **(571) 272-2717**. The examiner can normally be reached on Monday through Friday, 8:00 AM to 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Brenda Brumback, Ph.D.** can be reached on **(571) 272-0961**.

The fax number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see **<http://pair-direct.uspto.gov>**. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

JML  
November 22, 2004

A handwritten signature in black ink, reading "Lorraine Spector". The signature is fluid and cursive, with a large loop at the beginning of the first name.

**LORRAINE SPECTOR  
PRIMARY EXAMINER**



RESULT 10  
 US-10-343-650A-395  
 ; Sequence 395, Application US/10343650A  
 ; Publication No. US20040067499A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: HAGA, TATSUYA  
 ; TITLE OF INVENTION: NOVEL G-PROTEIN COUPLED RECEPTOR  
 ; FILE REFERENCE: 31671-186347  
 ; CURRENT APPLICATION NUMBER: US/10/343,650A  
 ; CURRENT FILING DATE: 2003-07-21  
 ; PRIOR APPLICATION NUMBER: JP 2000/237818  
 ; PRIOR FILING DATE: 2000-08-04  
 ; PRIOR APPLICATION NUMBER: JP 2001/34434  
 ; PRIOR FILING DATE: 2001-02-13  
 ; NUMBER OF SEQ ID NOS: 694  
 ; SOFTWARE: Patentin Ver. 2.1  
 ; SEQ ID NO 395  
 ; LENGTH: 933  
 ; TYPE: DNA  
 ; ORGANISM: Homo sapiens  
 ; FEATURE:  
 ; NAME/KEY: CDS  
 ; LOCATION: (1)..(933)  
 US-10-343-650A-395

Query Match 71.8%; Score 691.6; DB 13; Length 933;  
 Best Local Similarity 84.0%; Pred. No. 1.2e-204;  
 Matches 781; Conservative 0; Mismatches 149; Indels 0; Gaps 0;

QY 8 GCGAGAAATCCCTCCCGGAGAGATTATCTCGAGCGGTATATCCACAGCGGGGA 67  
 DB 4 GCGAGCAAAATCTCTTCTGACAGATTATCTCGAGCGGTATATCCACAGCGGGGA 63  
 QY 68 CTCGAGTCCCT 127  
 DB 64 CTCGCGATCCCT 123  
 QY 128 CTGGGCTTATATACTGATAGGAGCTCACTCTCGCGGATATCCCACTGATCTTTTC 187  
 DB 124 CTGGGCTTATATACTGATAGGAGCTCACTCTCGCGGATATCCCACTGATCTTTTC 183  
 QY 188 CCTTCACTTGTCCCTGATATTTAGTTTCTACAGCATTCTCCAAAATGCTG 247  
 DB 184 CTTTAACTCTCTTATAGATTCTGTTTCTCACTACATCATCTCCAAAATGCTG 243  
 QY 248 ATGAGTTTGTCTCAAGAGAAATATTTCTTACAGGCTGATAGTCACTTTTC 307  
 DB 244 ATGAGTTTGTCTCAAGAGAAATATTTCTTACAGGCTGATAGTCACTTTTC 303  
 QY 308 TTTCTCTGTTTCTTCT 367  
 DB 304 TTTCTCTGTTTCTTCT 363  
 QY 368 TACGTGGGATCTGTAACCACTGTTGTAACGATCAACATCTTCTCCAGGTTGTTG 427  
 DB 364 TACGTGGGATCTGTAACCACTGTTGTAACGATCAACATCTTCTCCAGGTTGTTG 423  
 QY 428 CTCCTTTTACTGGGATCTGTAACGAGATGAGGTTTGGGGCTGAGCTATACAGAAAT 487  
 DB 424 CTCCTTTTACTGGGATCTGTAACGAGATGAGGTTTGGGGCTGAGCTATACAGAAAT 483  
 QY 488 ATAGTTTCTCACTTTTGTGAGCAACAACCTGTGCAATCACTAGATGTGACATCTT 547  
 DB 484 ATAGTTTCTCACTTTTGTGAGCAACAACCTGTGCAATCACTAGATGTGACATCTT 543  
 QY 548 CCCCTTCTGAGCTCTCTGCAAGAGCTCTTACATTAATGCTGCTATCTTTATTTGTT 607  
 DB 544 CCCCTTCTGAGCTCTCTGCAAGAGCTCTTACATTAATGCTGCTATCTTTATTTGTT 603  
 QY 608 GTGACCGTTGGCATTTGGGGTGCATTTGCGGTTTATCTTANGTTTATTTCTT 667

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DB 604 GTGGCTGTGACCTTGGAAATGCCATTGTCACTGTCTTATTTCTTANGCTCATCTTC 663  
 QY 668 TCCAGATTTCTCCGCTTATGTTCTGTGAGGAGCTTAAAGCTTCACTAGCTGACAC 727  
 DB 664 TCCAGATTTCTCAACAAGTTCTTACAGAGGAGGCTCAAGGCTTATGTTAGTTCACT 723  
 QY 728 TCCACATTAATTCAGATTCTCTTTCTTTGGGTCAAGAGCTTTTACGTAACCTCAACCC 787  
 DB 724 TCCACATTAATTCAGATTCTCTTTCTTTGGGTCAAGAGCTTTTACGTAACCTCAACCC 783  
 QY 788 CCTTCATTTTAACTCTGAGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 847  
 DB 784 CTTTCATCTGCTGCTCTGAGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 843  
 QY 848 CCGATGTTTAACTCAATTAATTCAGAGCTGAGGATTAAGATGTCAACTTGCCCTGAAAG 907  
 DB 844 CCGGTTTAACTCAATTAATTCAGAGCTGAGGATTAAGATGTCAAAGTTGCTGAGGAG 903  
 QY 908 AGAACCTTTCCAGATTAAGATTCTTTCTTAA 937  
 DB 904 AGAACCTTTGGGAGAGAAATCTTTCTTAA 938

RESULT 11  
 US-10-220-382-35  
 ; Sequence 35, Application US/10220382  
 ; Publication No. US2003011911A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: INCYTE GENOMICS, INC.  
 ; APPLICANT: LAL, Preeti  
 ; APPLICANT: TANG, Y. Tom  
 ; APPLICANT: PATTERSON, Chandra  
 ; APPLICANT: YAO, Montique G.  
 ; APPLICANT: SHIH, Leo L.  
 ; APPLICANT: TRIBOUTEY, Catherine  
 ; APPLICANT: LU, Dying, Anna M.  
 ; APPLICANT: YUE, Henry  
 ; APPLICANT: KHAN, Farrah A.  
 ; APPLICANT: POLICKY, Jennifer L.  
 ; APPLICANT: AU-YOUNG, Janice  
 ; APPLICANT: YANG, Junning  
 ; APPLICANT: FARLAND, Lee  
 ; APPLICANT: WALSH, Roderrick T.  
 ; APPLICANT: LO, Terence P.  
 ; APPLICANT: BOROMSKY, Mark L.  
 ; TITLE OF INVENTION: G-PROTEIN COUPLED RECEPTORS  
 ; CURRENT APPLICATION NUMBER: US/10/220,382  
 ; CURRENT FILING DATE: 2001-03-01  
 ; PRIOR APPLICATION NUMBER: 60/186,954; 60/188,384; 60/190,453; 60/190,730  
 ; PRIOR FILING DATE: 2000-03-03; 2000-03-10; 2000-03-17; 2000-03-20  
 ; NUMBER OF SEQ ID NOS: 42  
 ; SOFTWARE: PERL Program  
 ; SEQ ID NO 35  
 ; LENGTH: 933  
 ; TYPE: DNA  
 ; ORGANISM: Homo sapiens  
 ; FEATURE:  
 ; NAME/KEY: misc feature  
 ; OTHER INFORMATION: incyte ID No. US2003011911A1 7472439CB1  
 US-10-220-382-35

Query Match 71.8%; Score 691.6; DB 15; Length 933;  
 Best Local Similarity 84.0%; Pred. No. 1.2e-204;  
 Matches 781; Conservative 0; Mismatches 149; Indels 0; Gaps 0;

QY 8 GCGAGAAATCCCTCCCGGAGAGATTATCTCGAGCGGTATATCCACAGCGGGGA 67  
 DB 4 GCGAGCAAAATCTCTTCTGACAGATTATCTCGAGCGGTATATCCACAGCGGGGA 63  
 QY 68 CTCGAGTCCCT 127  
 DB 64 CTCGCGATCCCT 123

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QY 128 CTGGGCTGTATATCCGATAGGGCTCACTCCGCTGATATCCCAATGATCTTTTC 187
Db 124 CTGGGCTGTATATCCGATAGGGCTGAACTCTCAGCTGACCTCCATGATCTTTTC 183
QY 188 CCGCTCACTGTGCTCCGATAGATTTAGTTTCTAGACCATCATCTCCAAATGCTG 247
Db 184 CTTTAACTCTCTTTAATAGATTTCTGTTTCTCAGTACCATCTCCAAATGCTG 243
QY 248 ATGAGTTTGTCTCAAGAAAGAAATTTATTTCTTCAAGGCTGATGATGATTTTC 307
Db 244 ATGAGTTTGTCTCAAGAAAGAAATTTATTTCTTCAAGGCTGATGATGATTTTC 303
QY 308 TTCTTCTGTTCTTTCTTTCTTTCTGATCTTCATCTTCGCGGATGATGAGAGCGC 367
Db 304 TTCTTCTGTTCTTTCTTTCTTTCTGATCTTCATCTTCGCGGATGATGAGAGCGC 363
QY 368 TAGTGGGATCTGTAAACCACTGTTGACAGATCACATGTTCTCCAGGTTGTTG 427
Db 364 TAGTGGGATCTGTAAACCACTGTTGACAGATCACATGTTCTCCAGGTTGTTG 423
QY 428 CTCTCTTACTGAGTGTCTACCGGATGAGGAGTTTGGGCTGCTGATACAGAAAT 487
Db 424 CTCTCTTACTGAGTGTCTACCGGATGAGGAGTTTGGGCTGCTGATACAGAAAT 483
QY 488 ATAGTGTCTCACTTTTGTGACAAACCTTGTCACTGATGATGATGATGATGAT 547
Db 484 ATAGTGTCTCACTTTTGTGACAAACCTTGTCACTGATGATGATGATGATGAT 543
QY 548 CCGCTCTGAGTGTCTCCGACAAAGCTCTTACATTAATGCTGATCTTTATGTT 607
Db 544 CCGCTCTGAGTGTCTCCGACAAAGCTCTTACATTAATGCTGATCTTTATGTT 603
QY 608 GTGACCGTGTGATGAGGAGGATGTTGCGGTTTATCTTATGATGATGATGAT 667
Db 604 GTGACCGTGTGATGAGGAGGATGTTGCGGTTTATCTTATGATGATGATGAT 663
QY 668 TCCAGATTTCTCCGCTTATGTTCTGTGAGGAGGATGATGATGATGATGATGAT 727
Db 664 TCCAGATTTCTCAACAAAGTTCTTACAGAGGAGGATGATGATGATGATGAT 723
QY 728 TCTTCAATATGAGATTTCTCTTTCTTTGGTGAAGGATTTTACCTGATGATGAT 787
Db 724 TCTTCAATATGAGATTTCTCTTTCTTTGGTGAAGGATTTTACCTGATGATGAT 783
QY 788 CTTTCCATTTTACCCCTGAGACAGGAGGATGATGATGATGATGATGATGATGAT 847
Db 784 CTTTCCATTTTACCCCTGAGACAGGAGGATGATGATGATGATGATGATGATGAT 843
QY 848 CCCATGTTTAAACCACTTATCTACAGCTGAGAGATTAAGATGATGATGATGATGAT 907
Db 844 CCCATGTTTAAACCACTTATCTATGATGATGATGATGATGATGATGATGATGAT 903
QY 908 AGAACCTTTTCCAGATTAAGCTTTCTTGA 937
Db 904 AGAACCTTTTCCAGATTAAGCTTTCTTGA 933

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RESULT 12

US-10-017-161-749

Sequence 749, Application US/10017161

Publication No. US2003014368A1

GENERAL INFORMATION:

APPLICANT: SUMA, MAKINO

APPLICANT: ASAI, KIYOSHI

APPLICANT: AKIYAMA, YUTAKA

APPLICANT: ABURATANI, HIROYUKI

TITLE OF INVENTION: NOVEL G PROTEIN-COUPLED RECEPTORS

FILE REFERENCE: 084335/0152

CURRENT APPLICATION NUMBER: US/10/017,161

PRIOR FILING DATE: 2002-12-18

PRIOR APPLICATION NUMBER: JP 2001/246789

PRIOR FILING DATE: 2001-06-18

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NUMBER OF SEQ ID NOS: 2430
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 749
LENGTH: 1336
TYPE: DNA
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: source
LOCATION: (1)..(1336)
FEATURE:
NAME/KEY: CDS
LOCATION: (201)..(1136)
US-10-017-161-749

```

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Query Match 68.3%; Score 657.4; DB 15; Length 1336;
Best Local Similarity 80.2%; Pred. No. 7,4e-194;
Matches 72; Conservative 0; Mismatches 191; Indels 0; Gaps 0;

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QY 1 AATGCTGCGGAGAACTCTCCCTGAGAGAGATTTATCTGCGAGGCTTAATCCACCA 60
Db 200 AATGCTGCGGAGAACTCTCTCTCTGAGAGATTTATCTGCGAGGCTTAATCCACCA 259
QY 61 GCGGAGCTCAGGTCCTGCTTCTTCTGATGATTTCTACCGGCTCAAGTGTG 120
Db 260 ACCGAGAGTCAGATCCCTCTTCTGATGATTTCTAGGCTTCTAGGTTGATGATG 319
QY 121 GGGAGCTGCGGCTGATTAATCTGATAGGCTCACTCTGCTGATTTCTCCCATGTA 180
Db 320 GGGAGCTGCGGCTGATTAATCTGATAGGCTCACTCTGCTGATTTCTCCCATGTA 379
QY 181 CTTTTCCTTCACTGTCCTCTGATGATTTATGTTCTTACAGACCATCTTCCAA 240
Db 380 CTTTTCCTTCACTGTCCTCTGATGATTTATGTTCTTACAGACCATCTTCCAA 439
QY 241 AATGCTGATGATTTGTTCTCAAGAAAGAAATTTCTTCTCAAGGCTGATGATGAT 300
Db 440 AATGCTGATGATTTGTTCTCAAGAAAGAAATTTCTTCTCAAGGCTGATGATGAT 499
QY 301 GTTCTTCTTCTGATTTCTTCTGATGATTTCTTCTGATGATTTCTTCTGATGAT 360
Db 500 GTTCTTCTTCTGATTTCTTCTGATGATTTCTTCTGATGATTTCTTCTGATGAT 559
QY 361 GGAACGCTACGAGGAGATGTAACCACTGTTGACAGATCAACATGTTCTCCAGGT 420
Db 560 TGAACGCTACGAGGAGATGTAACCACTGTTGACAGATCAACATGTTCTCCAGGT 619
QY 421 GTTCTTCTTCTTCTTCTGATGATTTCTTCTGATGATTTCTTCTGATGATTTCT 480
Db 620 GTTCTTCTTCTTCTTCTGATGATTTCTTCTGATGATTTCTTCTGATGATTTCT 679
QY 481 AGGAAATATAGTTTCTCACTTTTCTGAGAGCACTTGTCAATCATCAATGATGAT 540
Db 680 AGGAAATATAGTTTCTCACTTTTCTGAGAGCACTTGTCAATCATCAATGATGAT 739
QY 541 CATCTTCTTCTTCTTCTGATGATTTCTTCTGATGATTTCTTCTGATGATTTCT 600
Db 740 CATCTTCTTCTTCTTCTGATGATTTCTTCTGATGATTTCTTCTGATGATTTCT 799
QY 601 TATTTGTTGACAGGATGAGGATGAGGATGAGGATGAGGATGAGGATGAGGATGAG 660
Db 800 TATTTGTTGACAGGATGAGGATGAGGATGAGGATGAGGATGAGGATGAGGATGAG 859
QY 661 TATTTCTTCAAGATTTCTCCGCTTATGTTCTGATGAGGAGGATGAGGATGAGGAT 720
Db 860 TATTTCTTCAAGATTTCTCCGCTTATGTTCTGATGAGGAGGATGAGGATGAGGAT 919
QY 721 CTGAGCTGCTCATATATGAGGATTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCT 780
Db 920 CTGAGCTGCTCATATATGAGGATTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCT 979
QY 781 CAACCCCTTCTCATATTTACCCCTGAGACAGGAGGAAAGTGTCTCTCTGTTCTATACAC 840
Db 980 CAACCCCTTCTCTTTTATGATGATGATGATGATGATGATGATGATGATGATGAT 1039

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DB 788 AAACCCCTTTCATCTGCTCCCTCGAGCAAGGAAAGTCTCCCTGCTTATACCATTA 837
QY 281 ValValPrometPheAsnProLeuIleTyrSerLeuArgAsnLysAspValLysLeuAla 300
DB 838 ATAGTCCCTGCTTAAACCATTAATCTATAGCTTGAGAGAAAGATGTCAGAGTTGCC 897
QY 301 LeuLysArgThrPheSerArgLysSerPheSer 311
DB 898 CTGAGAGAACTTTGGGCAAAATCTTTCT 930

RESULT 4
US-10-343-650A-395
Sequence 395, Application US/10343650A
Publication No. US20040067499A1
GENERAL INFORMATION:
APPLICANT: HAGA, TATSUYA
TITLE OF INVENTION: NOVEL G-PROTEIN COUPLED RECEPTOR
FILE REFERENCE: 31671-186347
CURRENT APPLICATION NUMBER: US/10/343,650A
CURRENT FILING DATE: 2003-07-21
PRIOR APPLICATION NUMBER: JP 2000/237818
PRIOR FILING DATE: 2000-08-04
PRIOR APPLICATION NUMBER: JP 2001/34434
PRIOR FILING DATE: 2001-02-13
NUMBER OF SEQ ID NOS: 694
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 395
LENGTH: 933
TYPE: DNA
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: CDS
LOCATION: (1)..(933)
US-10-343-650A-395

Alignment Scores:
Pred. No.: 2,596-15 Length: 933
Score: 1273.50 Matches: 250
Percent Similarity: 87.46% Conservative: 22
Best Local Similarity: 80.39% Mismatches: 38
Query Match: 80.75% Indels: 1
DB: 13 Gaps: 1

US-10-023-597-24 (1-311) x US-10-343-650A-395 (1-933)

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QY 1 MetAlaAlaGluAsnSerSerSerValThrGluPheIleLeuAlaGlyLeuIleHisGln 20
DB 1 ATGGGAGCCCAAAAC---TCITCTCGACAGAGTTATCTCGAAGGCTTAACCCACAG 57
QY 21 ProGlyLeuGlnValProValPhePheLeuPheLeuGlyPheTyrAlaValThrValVal 40
DB 58 CCGGAGCTCGGATCCCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 117
QY 41 GlyAsnLeuGlyLeuIleIleLeuIleGlyLeuAsnSerArgLeuHisIlePrometTyr 60
DB 118 GGGAACTCGGCTGTATACCTCGATGGCTTAACCTCGACACACATCCCATATAC 177
QY 61 PhePheProPheAsnLeuSerLeuValAspPheSerPheSerThrThrIleIleProLys 80
DB 178 TTTCTCTCTTTTAACTCTCTCTTTTAAATTTCTCTCTCTCTCTCTCTCTCTCTCT 237
QY 81 MetLeuMetSerPheValSerArgLysAsnIleIleSerPheThrGlyCysMetSerGln 100
DB 238 ATGCTATGATGTTGTCTCAAGAGAAACATCTCTCTCTCTCTCTCTCTCTCTCTCTCT 297
QY 101 PhePhePhePheCysPhePheValPheSerGluSerPheIleLeuSerAlaMetValGlu 120
DB 298 CTCTTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 357
QY 121 AspArgTyrValGlyIleCysAsnProLeuLeuTyrThrIleHisMetSerProGlnVal 140
DB 358 GACCGCTAGCGCCATCTGTAAACCATGTTGTATACAGACAGTATGATCTTGCAGATG 417

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QY 141 CysLeuLeuLeuLeuLeuGlyValTyrGlyMetGlyValPheGlyValAlaAlaHisThr 160
DB 418 TGTTCCTGCTCTTTGTTGGGTCGTATGAGATGGGTTGCTGGGCCATGGCCACACACA 477
QY 481 GlyAsnIleValPheLeuThrPheCysAlaAspAsnLeuValAsnHisTyrMetCysAsp 180
DB 478 GGAAGCATAAAGAACTGACCTCTGTGCTGCAACCTGTCAATATTCATTCATGATGAC 537
QY 181 LeuLeuProLeuLeuGlyLeuSerCysAsnGlySerTyrIleAsnValLeuValIlePhe 200
DB 538 ATCCCTCTCTCTTGAAGCTCTCTCTGCAACAGCTCTTACATGATAGCGTGGTCTTT 597
QY 201 IleValValThrValAlaGlyIleGlyValProIleValAlaValPheIleSerTyrGlyPhe 220
DB 598 ATGTGGTGGCTTTGAGCTTGAATGCCATTTGTCATCTTTATTTCTTATGCTTC 657
QY 221 IleLeuSerSerAlaLeuAspValSerSerAlaGlyIleYargSerIleAlaPheSerSer 240
DB 658 ATCCCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 717
QY 241 CysSerSerTyrIleIleIleAlaValSerLeuPheGlySerGlyValPheThrTyrLeu 260
DB 718 TGCAATTCACCAATATGTAATTTCTCTTTCTTTGTTCTGTCTGCTCTTCAATGATC 777
QY 261 LysProProSerIleLeuProLeuAspGlnGlyValSerSerLeuPheTyrThrThr 280
DB 778 AAACCCCTTTCATCTGCTCCCTCTGAGCAAGGAAAGTGTCTCCCTGTTCTATACATA 837
QY 281 ValValPrometPheAsnProLeuIleTyrSerLeuArgAsnLysAspValLysLeuAla 300
DB 838 ATAGTCCCTGCTTAAACCATTAATCTATAGCTTGAGAGAAAGATGTCAAGATGTC 897
QY 301 LeuLysArgThrPheSerArgLysSerPheSer 311
DB 898 CTGAGAGAACTTTGGGCAAAATCTTTCT 930

RESULT 5
US-10-220-382-35
Sequence 35, Application US/10220382
Publication No. US2003011911A1
GENERAL INFORMATION:
APPLICANT: INCYTE GENOMICS, INC.
APPLICANT: LAL, Preeti
APPLICANT: TANG, Y. Tom
APPLICANT: PATTERSON, Chandra
APPLICANT: YAO, Monique G.
APPLICANT: SHIH, Leo L.
APPLICANT: TRIBOULEY, Catherine
APPLICANT: LU, Dyrng Alina M.
APPLICANT: YUE, Henry
APPLICANT: KHAN, Farrah A.
APPLICANT: POLICKY, Jennifer L.
APPLICANT: AU-YOUNG, Janice
APPLICANT: YANG, Dunning
APPLICANT: HARLAND, Lee
APPLICANT: WALSH, Roderick T.
APPLICANT: LO, Terence P.
APPLICANT: BOROMSKY, Mark L.
TITLE OF INVENTION: G-PROTEIN COUPLED RECEPTORS
FILE REFERENCE: FI-0044 PCT
CURRENT APPLICATION NUMBER: US/10/220,382
PRIOR FILING DATE: 2001-03-01
PRIOR APPLICATION NUMBER: 60/186,854; 60/188,384; 60/190,453; 60/190,730
PRIOR FILING DATE: 2000-03-03; 2000-03-10; 2000-03-17; 2000-03-20
NUMBER OF SEQ ID NOS: 42
SOFTWARE: PEBL Program
SEQ ID NO 35
LENGTH: 933
TYPE: DNA
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: misc_feature

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Page 5

OTHER INFORMATION: Incyte ID No. US2003011911A1 7472439CBI  
US-10-023-597-24

Alignment Scores:  
Pred. No.: 2,598-116 Length: 933  
Score: 1273.50 Matches: 250  
Percent Similarity: 87.46% Conservative: 22  
Best Local Similarity: 80.39% Mismatches: 38  
Query Match: 80.75% Indels: 1  
DB: 15 Gaps: 1

US-10-023-597-24 (1-311) x US-10-023-597-24 (1-933)

1 MetAlaAlaGluAsnSerSerValThrgLupheleuAlaGlyLeuLeHieGln 20  
1 ATGGCAGCCAAAAC---TCCTCTGACAGAGTTTATCTCGAAGGCTTAACCCACG 57  
21 ProGlyLeuGlnValProValPhePheLeuPheLeuGlyPheValAlaVal 40  
58 CCGGAGCTGGGATCCCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 117  
41 GlyAsnLeuGlyLeuLeileuLeileuLeileuLeuAsnSerArgLeuHieLe 60  
118 GGGAACTGGGCTTGAATACCTGATGGGCTGAACTCACTCACTCACTCACTCACT 177  
61 PhePheProPheAsnLeuSerLeuValAspPheSerPheSerThrThrIleLe 80  
178 TTCTCTCTCTTTTAACTCTCTCTTAAAGATTCTGTTCTCCACATCACTCCCAA 237  
81 MetLeuMetSerPheValSerArgLeuAsnLeileuSerPheThrGlyCysMetSerGln 100  
238 ATGCTGATGAGTTTGTCTCAAGAGAAACATCTCTCTCAAGAGGATGATGCTG 297  
101 PhePhePhePheCysPhePheValPheSerGlySerPheIleLeuSerAlaMetValGln 120  
298 CT 357  
121 AspArgTyrValGlyIleCysAsnProLeuLeuTyrThrIleThrMetSerProGlnVal 140  
358 GACCGCTACGCGCATCTGTAACCACTGTTGACAGACATGATGATGATGATG 417  
141 CysLeuLeuLeuLeuLeuGlyValIleGlyMetGlyValPheGlyValAlaAlaHieThr 160  
418 TGTGTTGCTCTTTGTTGGGTGGCTATGGGATGGGATGGGATGGGATGGGATGG 477  
161 GlyAsnIleValPheLeuThrPheCysAlaAspAsnLeuValAsnHieTyrMetCysAsp 180  
478 GGAAGCATTAATGAACTGACCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 537  
181 IleLeuProLeuLeuLeuLeuSerCysAsnGlySerTyrIleAsnValLeuValIlePhe 200  
538 ATCT 597  
201 IleValValThrValGlyIleGlyValProIleValAlaValPheIleSerTyrGlyPhe 220  
598 ATGTGTGTGCTGTGAGCTGGAATGCCATGTGACTGTCTTATTTCTTAAGCCCTC 657  
221 IleLeuSerSerIleLeuArgValSerSerAlaGlyArgSerIleAlaPheSerSer 240  
658 ATCT 717  
241 CysSerSerTyrIleIleAlaValSerLeuPhePheGlySerGlyAlaPheThrTyrLeu 260  
718 TGCAGTCCCAATTAATGATTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 777  
261 LysProProSerIleLeuProLeuAspGlnGlyIleValSerSerLeuPheTyrThrThr 280  
778 AAACCCCTTCCATCT 837  
281 ValValProMetPheAsnProLeuLeuIleTyrSerLeuArgAsnValAlaValAla 300  
838 ATGTGTCCCGTTAAACCATTAATCTAATGCTTGAAGAACAAAGATGTCAAGTTGCC 897

301 LeuYsArgThrPheSerArgIleSerPheSer 311  
DB 898 CTGACGAGAACTTTGGCGAGAAAATCTTTTCT 930

RESULT 6

US-10-017-161-325  
Sequence 325, Application US/10017161  
Publication No. US20030143668A1  
GENERAL INFORMATION:  
APPLICANT: SUMA, MAKIRO  
APPLICANT: ASAI, KIYOSHI  
APPLICANT: AKIYAMA, YUTAKA  
APPLICANT: ABURATANI, HIROYUKI  
TITLE OF INVENTION: NOVEL G PROTEIN-COUPLED RECEPTORS  
FILE REFERENCE: 084335/0152  
CURRENT APPLICATION NUMBER: US/10/017,161  
PRIOR FILING DATE: 2002-12-18  
PRIOR APPLICATION NUMBER: JP 2001/246789  
NUMBER OF SEQ ID NOS: 2430  
SOFTWARE: PatentIn Ver. 2.1  
SEQ ID NO: 25  
LENGTH: 1833  
TYPE: DNA  
ORGANISM: Homo sapiens  
FEATURE:  
NAME/KEY: source  
LOCATION: (1), (1333)  
FEATURE:  
NAME/KEY: CDS  
LOCATION: (201), (1133)  
US-10-017-161-325

Alignment Scores:  
Pred. No.: 4,328-116 Length: 1333  
Score: 1273.50 Matches: 250  
Percent Similarity: 87.46% Conservative: 22  
Best Local Similarity: 80.39% Mismatches: 38  
Query Match: 80.75% Indels: 1  
DB: 15 Gaps: 1

US-10-023-597-24 (1-311) x US-10-017-161-325 (1-1333)

1 MetAlaAlaGluAsnSerSerValThrgLupheleuAlaGlyLeuLeHieGln 20  
201 ATGGCAGCCAAAAC---TCCTCTGACAGAGTTTATCTCGAAGGCTTAACCCACG 257  
21 ProGlyLeuGlnValProValPhePheLeuPheLeuGlyPheValAlaVal 40  
258 CCGGAGCTGGGATCCCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 317  
41 GlyAsnLeuGlyLeuLeileuLeileuLeileuLeuAsnSerArgLeuHieLe 60  
318 GGAAGCATTAATGAACTGACCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 377  
61 PhePheProPheAsnLeuSerLeuValAspPheSerPheSerThrThrIleLe 80  
378 TTCTCTCTTTTAACTCTCTTAAAGATTCTGTTCTCCACATCACTCACTCCCAA 437  
81 MetLeuMetSerPheValSerArgLeuAsnLeileuSerPheThrGlyCysMetSerGln 100  
438 ATGCTGATGAGTTTGTCTCAAGAGAAACATCTCTCTCAAGGCTTAATGATCTCAG 457  
101 PhePhePhePheCysPhePheValPheSerGlySerPheIleLeuSerAlaMetValGln 120  
498 CT 557  
121 AspArgTyrValGlyIleCysAsnProLeuLeuTyrThrIleThrMetSerProGlnVal 140  
558 GACCGCTACGCGCATCTGTAACCACTGTTGACAGACATGATGATGATGATG 617  
141 CysLeuLeuLeuLeuLeuGlyValIleGlyMetGlyValPheGlyValAlaAlaHieThr 160

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SEQ ID NO 50  
LENGTH: 933  
TYPE: DNA  
ORGANISM: Homo sapiens  
US-09-886-855-50

Query Match  
Best Local Similarity 100.0%; Score 39; DB 9; Length 933;  
Matches 39; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 235 TCCCAAAATGCTGATGAGTTTGTCTCAAGGAAGAACAT 273  
DB 231 TCCCAAAATGCTGATGAGTTTGTCTCAAGGAAGAACAT 269

RESULT 13

US-09-804-291-50  
Sequence 50, Application US/09804291  
Publication No. US20030088059A1  
GENERAL INFORMATION:

APPLICANT: ZOZULA, SERGEY  
TITLE OF INVENTION: HUMAN OLFACTORY RECEPTORS AND GENES ENCODING SAME  
FILE REFERENCE: P 0278005  
CURRENT APPLICATION NUMBER: US/09/804,291

PRIOR FILING DATE: 2001-03-13  
PRIOR APPLICATION NUMBER: 60/188,914

PRIOR FILING DATE: 2000-03-13  
PRIOR APPLICATION NUMBER: 60/192,033

PRIOR FILING DATE: 2000-03-24  
PRIOR APPLICATION NUMBER: 60/198,474

PRIOR FILING DATE: 2000-04-14  
PRIOR APPLICATION NUMBER: 60/199,335

PRIOR FILING DATE: 2000-04-24  
PRIOR APPLICATION NUMBER: 60/207,702

PRIOR FILING DATE: 2000-05-26  
PRIOR APPLICATION NUMBER: 60/213,849

PRIOR FILING DATE: 2000-06-23  
PRIOR APPLICATION NUMBER: 60/226,534

PRIOR FILING DATE: 2000-08-16  
PRIOR APPLICATION NUMBER: 60/230,732

PRIOR FILING DATE: 2000-09-07  
PRIOR APPLICATION NUMBER: 68/266,862

PRIOR FILING DATE: 2001-02-07  
NUMBER OF SEQ ID NOS: 529

SOFTWARE: PatentIn Ver. 2.1

SEQ ID NO 50

LENGTH: 933

TYPE: DNA

ORGANISM: Homo sapiens

US-09-804-291-50

Query Match  
Best Local Similarity 100.0%; Score 39; DB 10; Length 933;  
Matches 39; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 235 TCCCAAAATGCTGATGAGTTTGTCTCAAGGAAGAACAT 273  
DB 231 TCCCAAAATGCTGATGAGTTTGTCTCAAGGAAGAACAT 269

RESULT 14

US-10-343-650A-395  
Sequence 395, Application US/10343650A  
Publication No. US20040067499A1  
GENERAL INFORMATION:

APPLICANT: HAGA, TATSUYA  
TITLE OF INVENTION: NOVEL G-PROTEIN COUPLED RECEPTOR

FILE REFERENCE: 31671-186347  
CURRENT APPLICATION NUMBER: US/10/343,650A

PRIOR FILING DATE: 2003-07-21  
PRIOR APPLICATION NUMBER: JP 2000/237818

PRIOR FILING DATE: 2000-08-04  
PRIOR APPLICATION NUMBER: JP 2001/34434

PRIOR FILING DATE: 2001-02-13  
NUMBER OF SEQ ID NOS: 694  
SOFTWARE: PatentIn Ver. 2.1

SEQ ID NO 395

LENGTH: 933

TYPE: DNA

ORGANISM: Homo sapiens

FEATURE:

NAME/KEY: CDS

LOCATION: (1)..(933)

US-10-343-650A-395

Query Match  
Best Local Similarity 100.0%; Score 39; DB 13; Length 933;  
Matches 39; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 235 TCCCAAAATGCTGATGAGTTTGTCTCAAGGAAGAACAT 273  
DB 231 TCCCAAAATGCTGATGAGTTTGTCTCAAGGAAGAACAT 269

\*

RESULT 15

US-10-220-382-35  
Sequence 35, Application US/10220382  
Publication No. US2003011911A1  
GENERAL INFORMATION:

APPLICANT: INCYTE GENOMICS, INC.

APPLICANT: TAL, Preeti

APPLICANT: TANG, Y. Tom

APPLICANT: PATTERSON, Chandra

APPLICANT: YAO, Monique G.

APPLICANT: SHIH, Leo L.

APPLICANT: TRIBOUTY, Catherine

APPLICANT: LU, Dying, Aina M.

APPLICANT: YUE, Henry

APPLICANT: KHAN, Farrah A.

APPLICANT: POLICKY, Jennifer L.

APPLICANT: RU-Young, Vanice

APPLICANT: VAN, Junning

APPLICANT: HARLAND, Lee

APPLICANT: WALSH, Roderick T.

APPLICANT: LO, Terence P.

APPLICANT: BOROWSKY, Mark L.

TITLE OF INVENTION: G-PROTEIN COUPLED RECEPTORS

FILE REFERENCE: FI-0044 PCT

CURRENT APPLICATION NUMBER: US/10/220,382

PRIOR FILING DATE: 2001-03-01

PRIOR FILING DATE: 2000-03-03; 2000-03-10; 2000-03-17; 2000-03-20

NUMBER OF SEQ ID NOS: 42

SOFTWARE: PERL Program

SEQ ID NO 35

LENGTH: 933

TYPE: DNA

ORGANISM: Homo sapiens

FEATURE:

NAME/KEY: misc feature

OTHER INFORMATION: Incyte ID No. US2003011911A1 7472439CBI

US-10-220-382-35

Query Match  
Best Local Similarity 100.0%; Score 39; DB 15; Length 933;  
Matches 39; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 235 TCCCAAAATGCTGATGAGTTTGTCTCAAGGAAGAACAT 273  
DB 231 TCCCAAAATGCTGATGAGTTTGTCTCAAGGAAGAACAT 269

Search completed: September 30, 2004, 10:01:34  
Job time : 562 secs

\*

QY 79 ProlysmetleuMetSerPheValSerArgLysAsnIleIleSerPheThrGlyCysMet 98  
Db 232 CCCAAATGCTGATGAGTTTGTCTCAAGAGAACATCATTTCTTCAAGGGTGTATG 291

RESULT 11  
US-10-220-382-35  
Sequence 35, Application US/10220382  
Publication No. US2003011911A1  
GENERAL INFORMATION:  
APPLICANT: INCYTE GENOMICS, INC.  
APPLICANT: LAU, Preeti  
APPLICANT: TANG, Y. Tom  
APPLICANT: PATTERSON, Chandra  
APPLICANT: YAO, Monique G.  
APPLICANT: SHIH, Leo L.  
APPLICANT: TRIBOULEY, Catherine  
APPLICANT: LU, Dzung Anna M.  
APPLICANT: YUE, Henry  
APPLICANT: KHAN, Farrah A.  
APPLICANT: POLICKY, Jennifer L.  
APPLICANT: AU-YOUNG, Janice  
APPLICANT: YANG, Junming  
APPLICANT: WALSH, Roderick T.  
APPLICANT: LO, Terence P.  
APPLICANT: BOROWSKY, Mark L.  
TITLE OF INVENTION: G-PROTEIN COUPLED RECEPTORS  
FILE REFERENCE: PI-0044 PCT  
CURRENT APPLICATION NUMBER: US/10/220,382  
CURRENT FILING DATE: 2001-03-01  
PRIOR APPLICATION NUMBER: 60/186,854; 60/189,384; 60/190,453; 60/190,730  
PRIOR FILING DATE: 2000-03-03; 2000-03-10; 2000-03-17; 2000-03-20  
NUMBER OF SEQ ID NOS: 42  
SOFTWARE: PERL Program  
SEQ ID NO 35  
LENGTH: 933  
TYPE: DNA  
ORGANISM: Homo sapiens  
FEATURE:  
NAME/KEY: misc feature  
OTHER INFORMATION: incyte ID No. US2003011911A1 7472439CB1  
US-10-220-382-35

Alignment Scores:  
Pred. No.: 6.36e-10 Length: 933  
Score: 20.00 Matches: 20  
Percent Similarity: 100.00% Conservative: 0  
Best Local Similarity: 100.00% Mismatches: 0  
Query Match: 6.43% Indels: 0  
DB: 15 Gaps: 0

US-10-023-597-24 (1-311) x US-10-220-382-35 (1-933)

QY 79 ProlysmetleuMetSerPheValSerArgLysAsnIleIleSerPheThrGlyCysMet 98  
Db 232 CCCAAATGCTGATGAGTTTGTCTCAAGAGAACATCATTTCTTCAAGGGTGTATG 291

RESULT 12  
US-10-005-041A-13  
Sequence 13, Application US/10005041A  
Publication No. US2003022331A1  
GENERAL INFORMATION:  
APPLICANT: Caeman, Stacie J  
APPLICANT: Padigaru, Muralidhara  
APPLICANT: Burgess, Catherine E  
APPLICANT: Shimkets, Richard A  
APPLICANT: Spitek, Kimberly A  
APPLICANT: Gillett, Jennifer A  
APPLICANT: Mayotte, Jane E  
APPLICANT: Baumgardner, Jason C  
APPLICANT: Mishra, Virendu  
APPLICANT: Vernet, Corine AM

APPLICANT: Dickinson, Kevin S  
APPLICANT: Ballinger, Robert A  
APPLICANT: Wolenc, Adam R  
APPLICANT: Edinger, Shlomit R  
APPLICANT: MacDougall, John R  
APPLICANT: Smithson, Glenda  
APPLICANT: Ellerman, Karen  
APPLICANT: Stone, David J  
APPLICANT: Gunther, Erik  
APPLICANT: Gerlach, Valerie  
TITLE OF INVENTION: NOVEL PROTEINS AND NUCLEIC ACIDS ENCODING SAME  
FILE REFERENCE: 21402-215  
CURRENT APPLICATION NUMBER: US/10/005,041A  
CURRENT FILING DATE: 2001-12-04  
PRIOR APPLICATION NUMBER: 60/251,459  
PRIOR FILING DATE: 2000-12-05  
PRIOR APPLICATION NUMBER: 60/259,007  
PRIOR FILING DATE: 2000-12-29  
NUMBER OF SEQ ID NOS: 205  
SOFTWARE: PatentIn Ver. 2.1  
SEQ ID NO 13  
LENGTH: 953  
TYPE: DNA  
ORGANISM: Homo sapiens  
US-10-005-041A-13

Alignment Scores:  
Pred. No.: 6.5e-10 Length: 953  
Score: 20.00 Matches: 20  
Percent Similarity: 100.00% Conservative: 0  
Best Local Similarity: 100.00% Mismatches: 0  
Query Match: 6.43% Indels: 0  
DB: 16 Gaps: 0

US-10-023-597-24 (1-311) x US-10-005-041A-13 (1-953)

QY 79 ProlysmetleuMetSerPheValSerArgLysAsnIleIleSerPheThrGlyCysMet 98  
Db 247 CCCAAATGCTGATGAGTTTGTCTCAAGAGAACATCATTTCTTCAAGGGTGTATG 306

RESULT 13  
US-10-024-399-1  
Sequence 1, Application US/10024399  
Publication No. US20030100491A1  
GENERAL INFORMATION:  
APPLICANT: Padigaru, Muralidhara  
APPLICANT: Kekuda, Ramesh  
APPLICANT: Coleman, Steven D.  
APPLICANT: Spitek, Kimberly A.  
APPLICANT: Ballinger, Robert A.  
APPLICANT: Vernet, Corine A.M.  
APPLICANT: Li, Li  
APPLICANT: Shenoy, Suresh G.  
APPLICANT: Caeman, Stacie J.  
TITLE OF INVENTION: NOVEL PROTEINS AND NUCLEIC ACIDS ENCODING SAME  
FILE REFERENCE: 21400-224AE  
CURRENT APPLICATION NUMBER: US/10/024,399  
CURRENT FILING DATE: 2001-12-18  
PRIOR APPLICATION NUMBER: 60/256,635  
PRIOR FILING DATE: 2000-12-18  
PRIOR APPLICATION NUMBER: 60/259,743  
PRIOR FILING DATE: 2001-01-04  
PRIOR APPLICATION NUMBER: 60/259,327  
PRIOR FILING DATE: 2001-06-19  
PRIOR APPLICATION NUMBER: 60/261,498  
PRIOR FILING DATE: 2001-01-12  
PRIOR APPLICATION NUMBER: 60/263,689  
PRIOR FILING DATE: 2001-01-24  
PRIOR APPLICATION NUMBER: 60/267,464  
PRIOR FILING DATE: 2001-02-08  
PRIOR APPLICATION NUMBER: 60/271,021  
PRIOR FILING DATE: 2001-02-22  
PRIOR APPLICATION NUMBER: 60/275,946